

Natural balance critical to mealybug control

I don't normally see mealybugs but they have become more of a problem in recent years. What's going on and how do I manage them?

THE FOLLOWING ANSWER is supplied by Marcel Essling, senior viticulturist.

A: Mealybugs are an old foe of tablegrape producers but generally are not a problem for winegrapes. A possible explanation is the difference in cultural practices. In most winegrape vineyards in Australia, insecticide use is limited and, thus, mealybug numbers are generally kept in check by a natural population of predators and parasites.

In contrast, the need for unblemished fruit for the tablegrape market has resulted in greater use of insecticides and consequent disruption of the predators and parasites, allowing mealybug populations to increase to problem levels.

Therefore, if mealybugs are infesting your winegrapes and causing significant damage, it is worth considering what may have disrupted the natural balance. Mealybugs are a food source or egg host for a number of natural enemies – these include parasitic wasps, larvae and adults of certain ladybird species and green lacewings. Provision of habitat and food sources for parasites and predators of mealybugs may help to maintain beneficial populations when mealybugs are scarce.

While covercrops and flowering plants can provide shelter, pollen and nectar, it is also important to minimise the use of broad-spectrum insecticides that impact on beneficial species. The presence of ants in a grapevine often indicates that sap-sucking insects are at work. Ants will actively protect mealybugs in order to feed on their honeydew. Bunches and leaves that are touching the trunk or cordon are more likely to have mealybugs – try to minimise this.

If general infestation levels exceed a threshold of 10 per cent of the 100 leaves or bunches sampled, it may be necessary to use a chemical control option. However, this decision should be balanced against the potential for hot weather and natural predators to decrease the mealybug population and winery tolerance for mealybug contamination.

If significant economic loss has been experienced in previous seasons and present seasonal conditions (about 25°C and a high relative humidity) favour mealybug development, then chemical control may be warranted. The online search facility and electronic version of the AWRI 'Dog Book', available on

the AWRI website, provides a guide to all registered chemical options for mealybugs – check the product label for appropriate use in your vineyard as registrations vary between states and between mealybug species.

Sprays should be carefully timed and targeted, e.g. when mealybug nymphs are observed in large numbers because they are more vulnerable than adults. A dormant vine spray can target overwintering adults – but they are well-sheltered under bark and good coverage is essential.

Mealybugs do not move far within a vineyard, even with the help of ants. Identifying hotspots and then controlling infested areas is recommended. Be aware that vineyard machinery may spread mealybugs.

Visit the AWRI website for Viti-notes fact sheets on mealybugs and other pests or email rtp@awri.com.au to enquire about Research to Practice training in pest and disease control.

My vigorous Viognier vines have very compact bunches that are susceptible to bunch rot. I have read that gibberellic acid can be used to make the bunch less compact. Is this correct?

The following answer is supplied by Dr Peter Dry, viticulture consultant

A: Spray application of gibberellic acid (as GA3) at early flowering can be used to lengthen the bunch framework, reduce berry number per bunch and increase berry size of seedless tablegrapes such as Sultana (also known as Thompson Seedless). However, this practice is not

recommended for seeded grape varieties (wine, table or drying) because it has been found to reduce bud fruitfulness and increase the incidence of primary bud necrosis (PBN), collectively resulting in reduced bunch number in the following season.

Since Viognier is ordinarily very susceptible to PBN, gibberellic acid application would exacerbate this problem. Fortunately, the labels of registered GA products stipulate the varieties to which it may be applied – therefore, accidental use by a winegrape grower is unlikely.

You could try retaining more nodes at pruning so as to increase shoot and bunch number per vine – these bunches should set fewer berries per bunch to compensate for the increased bunch number. Furthermore, the increased crop load will compete with shoot growth and, thus, potentially reduce shoot vigour.

If excessive vigour continues to be a problem, then we will need to look at other potential solutions appropriate for your site. If the resulting bunch number is excessive for your planned end use, you will need to bunch thin prior to veraison in order to adjust yield to the desired level – do this as late as possible so as to maximise competition with shoot growth.

What is the best way to retain more nodes at pruning? You have cordon training plus spur pruning on a VSP trellis so you could use finger and thumb pruning. Alternatively, you could use one of the lower moveable foliage wires as a fixed wire and attach canes arising from



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the cordon level to this wire.

An alternative approach to loosen bunches is to deliberately reduce fruitset by removal of the eight or so basal leaves on fruiting shoots at the beginning of flowering (E-L 19). This can be done either manually or mechanically. This practice has been successfully used in experiments with several winegrape varieties including Semillon, Trebbiano, Graciano and Sangiovese.

Not only has bunch compactness been decreased (mainly as a result of fewer berries per bunch) but also less bunch rot has been observed. This technique works because the basal leaves, prior to flowering, are the most important source of resources for the developing inflorescence. The increased bunch exposure that will result might need to be compensated for by the manipulation of shoots to provide protection of bunches, particularly on the west side of your north-south rows. Given that your vines are vigorous, you might find that growth of lateral shoots in the bunchzone may



An alternative approach to loosen bunches is to deliberately reduce fruit set by removal of the eight or so basal leaves on fruiting shoots at the beginning of flowering (E-L 19). Photo: Mardi Longbottom.

provide adequate protection of bunches later in the season (the lateral shoots should not be removed at the time of defoliation).

Ask the AWRI is a monthly column, which will focus on viticulture and oenology issues. Many of the topics and questions will be sourced from the AWRI Roadshows and events held throughout the year. If you have questions you would like addressed in this column, contact the editor Jen Barwick on email: editor@grapeandwine.com.au

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